# COURSE DESCRIPTION CARD - SYLLABUS

Course name

Unmanned aerial vehicle

## Course

Field of study

Aviation

Year/Semester

3/5

Area of study (specialization)

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

## Number of hours

Lecture

30

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

## Number of credit points

2

## Lecturers

Responsible for the course/lecturer:

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Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

## Prerequisites

Knowledge:

1. Basics of mathematics, chemistry and physics.

Skills:

1. The use of literature (textbooks, the Internet) skills of perception of lecture content.

Social competence:

1. Awareness of the need to deepen engineering knowledge and its place in everyday life

Skills: Is able to analyze the interdependencies between the effects and causes of phenomena and events resulting from the laws of physics.

Social competences: Prepared for teamwork.

## Course objective

Familiarization with the issues of construction and use of unmanned aerial vehicles

## Course-related learning outcomes

Knowledge

1. has detailed knowledge related to selected issues in the field of manned and unmanned aircraft construction, in the field of on-board equipment, control systems, communication and recording systems, automation of individual systems, has basic knowledge of flight simulation training devices and simulation methods used to solve air transport issues

2. has extended knowledge in the field of material strength, including the theory of elasticity and plasticity, stress hypotheses, methods of calculating beams, membranes, shafts, joints and other structural elements, as well as methods of testing the strength of materials and the state of deformation and stress in structures, and has basic knowledge of the main departments of technical mechanics: statics, kinematics and dynamics of a material point and a rigid body

3. has basic knowledge of metal, non-metal and composite materials used in machine construction, in particular about their structure, properties, methods of production, heat and thermo-chemical treatment and the influence of plastic processing on their strength, as well as fuels, lubricants, technical gases, refrigerants e.t.c.

Skills

1. is able to design elements of means of transport with the use of data on environmental protection

Social competences

1. is aware of the importance of knowledge in solving engineering problems and knows examples and understands the causes of faulty engineering projects that have led to serious financial and social losses, or to a serious loss of health and even life

2. understands that in technology, knowledge and skills very quickly become obsolete

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: written exam,

Exercises: written exam

## Programme content

1. airspace management at the global, European and Polish level;

2. provisions of the aviation law concerning unmanned aerial vehicles;

3. construction of unmanned aerial vehicles;

4. a man as a pilot of an unmanned aerial vehicle;

5. safety of unmanned aircraft flights;

6. operating procedures.

## Teaching methods

Lecture: informative, transfer of information in a systematic way,

Exercises: solving problems indicated by the teacher

## Bibliography

Basic

1. Drony dla początkujących, Terry Kilby, Belinda Kilby,

2. Drony, Wiktor Wyszywacz,

3. Ustawa Prawo lotnicze,

4. Rozporządzenia wykonawcze UE 2019/947 oraz 2019/945,

5. Wytyczne nr 7 Prezesa Urzędu Lotnictwa Cywilnego z 2021r

Additional

1. Pilecki S., Lotnictwo i kosmonautyka, WKŁ, Warszawa 1984

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 50 | 2,0 |
| Classes requiring direct contact with the teacher | 45 | 2,0 |
| Student's own work (literature studies, preparation for classes, preparation for tests,) [1] | 5 | 0,0 |

[1] delete or add other activities as appropriate